

Claims

- [c1] An automotive side impact assembly comprising:
- a door assembly including a door body portion and a window opening portion, said door body portion and said window opening portion meeting to form a beltline;
 - a window assembly positioned within said window opening portion and extending into said door body portion when in a window closed condition;
 - a automotive seat assembly positioned adjacent said door assembly;
 - a side-impact air bag assembly having a deployed condition in which a side air-bag is deployed during a collision, said side-impact air-bag assembly positioned within the automobile such that said side air-bag is deployed between said door assembly and said automotive seat, and
 - a laminate assembly in communication with said window assembly, said laminate assembly having an upper laminate portion extending above said beltline into said window opening portion when said window assembly is in said window closed condition, said laminate assembly having a lower laminate portion extending below said beltline into said door body portion when said window

assembly is in said window closed position, said laminate assembly providing structural rigidity to said window assembly such that said side air-bag is supported during deployment.

[c2] An automotive side impact assembly as described in claim 1, wherein said laminate assembly is applied on an exterior surface of said window assembly.

[c3] An automotive side impact assembly as described in claim 1, wherein said laminate assembly is applied on an interior surface of said window assembly.

[c4] An automotive side impact assembly as described in claim 1, wherein said laminate assembly comprises a first laminate portion having a first laminate strength and a second laminate portion having a second laminate strength.

[c5] An automotive side impact assembly as described in claim 1, wherein said glass assembly comprises:
a first window pane section; and
a second window pane section, said laminate assembly positioned between said first window pane section and said second window pane section.

[c6] An automotive side impact assembly as described in claim 4, wherein said first laminate portion comprises a

perimeter laminate positioned along said beltline at a window side edge; and said second laminate portion comprises a center laminate positioned along said beltline at a window center.

[c7] An automotive side impact assembly as described in claim 1, wherein said laminate assembly is translucent.

[c8] An automotive side impact assembly as described in claim 1, wherein said side-impact air bag assembly is positioned within said door body portion.

[c9] An automotive side impact assembly as described in claim 1, wherein said automotive seat assembly is positioned relative to said window assembly such that a shoulder of a passenger positioned within said automotive seat assembly rises above said beltline.

[c10] An automotive side impact assembly comprising:
a door assembly including a door body portion and a window opening portion, said door body portion and said window opening portion meeting to form a beltline;
a window assembly positioned within said window opening portion and extending into said door body portion when in a window closed condition;
a automotive seat assembly positioned adjacent said door assembly, said automotive seat assembly posi-

tioned such that an impact zone is defined between a shoulder of a passenger seated in said automotive seat assembly and said window assembly;

a side-impact air bag assembly having a deployed condition in which a side air-bag is deployed during a collision, said side-impact air-bag assembly positioned within the automobile such that said side air-bag is deployed partially between said impact zone and said shoulder, and

a laminate assembly in communication with said window assembly, said laminate assembly having an upper laminate portion extending above said beltline into said impact zone when said window assembly is in said window closed condition, said laminate assembly providing structural rigidity to said window assembly in the region of said impact zone such that said side air-bag is supported during deployment.

[c11] An automotive side impact assembly as described in claim 10, wherein said laminate assembly includes a lower laminate portion extending below said beltline into said door body portion when said window assembly is in said window closed position.

[c12] An automotive side impact assembly as described in claim 10, wherein said laminate assembly is applied on an exterior surface of said window assembly.

- [c13] An automotive side impact assembly as described in claim 12, wherein said laminate assembly is further applied on an exterior surface of said window assembly.
- [c14] An automotive side impact assembly as described in claim 10, wherein said laminate assembly comprises a first laminate portion having a first laminate strength and a second laminate portion having a second laminate strength.
- [c15] An automotive side impact assembly as described in claim 10, wherein said glass assembly comprises:
a first window pain section; and
a second window pain section, said laminate assembly positioned between said first window pain section and said second window pain section.
- [c16] An automotive side impact assembly as described in claim 14, wherein said first laminate portion comprises a perimeter laminate positioned along said beltline at a window side edge; and said second laminate portion comprises a center laminate positioned along said beltline at a window center.
- [c17] An automotive side impact assembly as described in claim 10, wherein said laminate assembly is translucent.

- [c18] An automotive side impact assembly as described in claim 10, wherein said side-impact air bag assembly is positioned within said door body portion.
- [c19] A method of improving an automotive side impact assembly comprising:
identifying an impact zone on an automotive window assembly caused by a deployed side impact air bag assembly by determining the position of a passenger's shoulder above a beltline of said automotive window assembly;
reinforcing said automotive window assembly by applying a structurally reinforcing laminate assembly to said automotive window assembly in said impact zone.
- [c20] A method of improving an automotive side impact assembly as described in claim 19, further comprising:
applying said structurally reinforcing laminate assembly such that said laminate assembly has an upper laminate portion extending above said beltline into said window opening portion when said window assembly is in a window closed condition and said laminate assembly has a lower laminate portion extending below said beltline into a door body portion when said window assembly is in a window closed position.